HSR&D Discovery
CENTER FOR PRACTICE MANAGEMENT AND OUTCOMES RESEARCH
VA HEALTH SERVICES RESEARCH AND DEVELOPMENT CENTER OF EXCELLENCE : VA ANN ARBOR HEALTHCARE SYSTEM

FOCUS ON PHYSICAL ACTIVITY RESEARCH

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Caroline Richardson, MD, recently had three grants funded to study the effects of physical activity interventions using enhanced pedometers for patients with chronic illnesses such as Type 2 diabetes or cardiovascular disease. These research studies tie together her research focus areas of delivering high quality primary care medicine, promoting physical activity, and employing information technology to improve health outcomes to patients with chronic illness.

AUTOMATED STEP-COUNT FEEDBACK TO PROMOTE PHYSICAL ACTIVITY IN DIABETES

A PILOT STUDY FUNDED BY THE MICHIGAN DIABETES RESEARCH & TRAINING CENTER

While researchers agree that physical activity is a critical behavior in the prevention and management of Type 2 diabetes, we know little about exactly how to effectively promote physical activity for people with diabetes. For example, there is a debate about the recommended optimal duration of bouts of physical activity for improving health outcomes. We know that breaking up exercise sessions into several bouts as short as 10 minutes each throughout the day confers the same physiologic benefits as a single long bout of physical activity. However, it may be that even shorter bouts of activity accumulated throughout the day can improve health outcomes. The concern about duration of physical activity bouts becomes particularly important with respect to pedometer interventions. While pedometers are powerful motivators for increasing walking, simple pedometers count only the accumulated steps per day and do not have the capacity to assess duration or intensity of physical activity. In this pilot study, we will compare the effects of physical activity counseling focusing on bouts of walking lasting 10 minutes or longer versus physical activity counseling focusing on total steps of walking accumulated throughout the day in a group of patients with Type 2 diabetes. The specific aims are:

1) To develop and test a computer program that automatically collects pedometer data, records the data in a format suitable for statistical analysis, and generates and distributes tailored e-mail messages to participants to promote walking;

2) To compare total daily steps in people with diabetes randomized to two different 6-week pedometer and e-mail-based walking interventions. The two interventions will differ only in the emphasis for goal setting and feedback:

   • Group 1: emphasizes 10-minute minimum duration of walking bouts

   • Group 2: emphasizes total daily steps without regard to duration of walking bouts;

3) To compare steps accumulated in walking bouts lasting for at least 10 minutes between the same two groups of participants with diabetes; and

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4) To assess the feasibility, cost, dropout rate and participant satisfaction with a pedometer and e-mail based walking intervention for participants with diabetes.

VETERANS WALK FOR HEALTH STUDY

VA REHABILITATION RESEARCH AND DEVELOPMENT MERIT AWARD

CAROLINE RICHARDSON, MD

Patients with risk factors for cardiovascular disease including obesity, hypertension, diabetes and hypercholesterolemia can reduce their risk of suffering from a heart attack or stroke by improving their diet and by becoming more physically active. Primary care physicians often refer high-risk patients for nutritional counseling, but physical activity counseling is frequently neglected. The primary objective of this study is to test the efficacy of a low-cost, innovative weight loss program targeting lifestyle physical activity and diet delivered by dietitians and using enhanced pedometers. Participants will be randomized to one of three study groups:

(1) nutritional counseling alone;

(2) nutritional counseling with simple pedometer feedback; and

(3) nutritional counseling, with both simple pedometer and enhanced pedometer (web-based) feedback.

All participants will attend a total of six one-on-one nutritional counseling sessions with certified dietitians over the course of six months. Only the physical activity component of the intervention, specifically the mode of self-monitoring of daily walking, will vary across the three arms of the study. The primary outcome will be weight loss during the six-month intervention period. A secondary objective is to measure the impact of objective monitoring and mode of step-count feedback on adherence to a walking program.

MOTIVATIONAL FEEDBACK TO INCREASE WALKING ADHERENCE

5-YEAR MENTORED PATIENT-ORIENTED RESEARCH CAREER DEVELOPMENT AWARD (K23) FUNDED BY NHLBI

The third grant is a career development grant, covering the costs of both a 5-year mentored research training program for Dr. Richardson and a pilot study of a tailored intervention to increase walking in patients with cardiovascular disease. Dr. Richardson will be mentored by John Piette, a senior clinical researcher at HSR&D, and she will be taking courses at the University of Michigan School of Public Health to develop the skills necessary to become a successful independent investigator. The research plan for the pilot study component of this grant involves developing and testing a walking intervention using enhanced pedometers and web-based step count feedback to promote walking in people with known cardiovascular disease. The specific aims of this study are:

1) To develop intervention materials, including a participant workbook and newsletters necessary to implement the computer-generated, tailored, print-mediated feedback inter vention to promote physical activity in patients with cardiovascular disease;

2) To test the feasibility of the intervention in a small uncontrolled sample of patients with cardiovascular disease and to use participant feedback to refine the intervention;

3) To compare the effect of two different modes of step-count feedback (local vs computer-mediated) on adherence to a walking program in a randomized controlled trial; and

4) To estimate the cost-effectiveness of implementing the web-based intervention in a primary care setting for patients with cardiovascular disease.

SERIOUS MENTAL ILLNESS TREATMENT RESEARCH & EVALUATION CENTER (SMITREC)

Drs. Frederic Blow, Kristen Barry, and their colleagues have been recently awarded two large Federal grants from the National Institute for Drug Abuse (NIDA) and the National Institute for Alcohol Abuse and Alcoholism (NIAAA) to test the effectiveness of methods designed to motivate and help out-of-treatment individuals who abuse either alcohol or illicit drugs to engage in needed treatment.

FREDERIC BLOW, PH.D, MA
DIRECTOR, SMITREC

A significant gap exists in the United States between people who need treatment services for alcohol abuse and illicit drug abuse/dependence and those who actually receive it. There is a pressing need to test methods that will optimally link and engage out-of-treatment substance abusers with services. The Emergency Department (ED) is an ideal location in which to target screening and linkage to assessment and treatment services because of the large heterogeneous proportion of people seen in this setting who have drug and alcohol related problems. There is good evidence from the literature that patients who abuse alcohol and other substances and present with injuries in the ED do not receive needed services to access the initial steps in the treatment continuum: assessment and treatment entry.

KRISTEN BARRY, PH.D, MS
ASSOC. DIRECTOR, SMITREC

Given the potential of the ED as a "window of opportunity" for identification and early intervention for injured individuals who abuse alcohol or other substances, it is important to determine which interventions, of varying intensities and types, are most effective in linking these individuals to assessment and facilitating treatment entry and follow through. The studies will compare three alternative strategies in the ED to promote linkage to substance abuse assessment, referral, and treatment entry for those who meet abuse/dependence criteria for alcohol or for illicit drugs:

1) a 5-session Strengths-Based Case Management (SBCM) model;

2) a 2-session Brief Motivational Enhancement (BME); or

3) a one-time Brief Informational Feedback (BIF) session.

Patients who present to Hurley Medical Center in Flint, MI (a large inner-city ED), with injuries will be screened using a structured survey about substance and alcohol use and consequences. Eligible subjects will receive a baseline assessment and, using stratified randomization by gender, will be assigned to one of the three study conditions in each study.

"THERE IS GOOD EVIDENCE FROM THE LITERATURE THAT PATIENTS WHO ABUSE ALCOHOL AND OTHER SUBSTANCES AND PRESENT WITH INJURIES IN THE EMERGENCY DEPARTMENT DO NOT RECEIVE NEEDED SERVICES TO ACCESS THE INITIAL STEPS IN THE TREATMENT CONTINUUM: ASSESSMENT AND TREATMENT ENTRY."

The primary outcome variables for these trials include receiving an assessment and referral, treatment entry, degree of treatment completion, subsequent alcohol or substance use/abuse, health services utilization, health status changes, and psychosocial factors. The secondary aims are to determine which baseline predisposing, enabling, and need factors predict follow through with assessment and treatment entry. Brief pre-treatment interventions have received little study as a part of the linkage process that helps patients at a teachable moment to access assessment and treatment services, address barriers to receiving these services, and promote positive life outcomes. These studies will provide critically important information on how to best facilitate linkage to the essential first steps in the treatment process for out-of-treatment substance abusers.

SARAH KREIN, PHD, RN

TRANSLATING INFECTION PREVENTION EVIDENCE TO ENHANCE PATIENT SAFETY

SARAH L. KREIN, PHD, RN, AND SANJAY SAINT, MD, MPH

Determining the best methods for ensuring the effective use of proven practices in real world clinical settings is a challenging task. The objective of this research is to identify and develop strategies to optimize the successful implementation of key practices in the field of patient safety and health care associated infection prevention. Once evidence-based and cost-effective infection prevention practices are determined by rigorous evaluation, we want to identify the barriers as well as facilitators to widespread implementation and thereby the most promising type of interventions to ensure the correct use of these practices and subsequent reduction in infection risk. The primary aims of this study are: 1) To describe the adoption and diffusion of evidence-based infection prevention practices among VA medical centers; and 2) to identify and compare factors that facilitate and impede the adoption and implementation of evidence-based infection prevention practices in VA medical centers.

SANJAY SAINT, MD

A survey will be conducted of all VA medical centers about specific infection prevention practices. Structured telephone interviews will be conducted with key informants at approximately 18-22 VA facilities, and site visits will be made to 4-5 VA hospitals to identify specific factors that serve to facilitate or inhibit the adoption or implementation of important infection prevention practices.

This will be a sequential mixed methods study involving the collection and analysis of both quantitative and qualitative data. Analysis of the quantitative data will include use of such techniques as logistic regression and spatial analysis. The qualitative data will be reviewed for themes that can be compared and contrasted both within and across cases. The findings and recommendations resulting from this study will be distributed using a variety of methods, including publications and presentations to key audiences.

The longer term goal of this research is to develop, evaluate and disseminate portable, deployable, and flexible interventions to facilitate adoption and implementation of proven infection prevention practices in VA hospitals, thereby decreasing infection risk and increasing the safety of patients system-wide. Moreover, characterizing organizational strategies that impede or facilitate the adoption of recommended infection prevention practices is likely to provide information that is relevant in the translation of other patient safety activities.

JOHN MCCARTHY, PHD

DISRUPTIVE BEHAVIORS IN VA NURSING HOMES: HOW DIFFERENT ARE RESIDENTS WITH SERIOUS MENTAL ILLNESS?

JOHN F. MCCARTHY, PHD, FREDERIC C. BLOW, PHD, HELEN C. KALES, MD

HELEN KALES, MD

An ongoing policy concern has been whether patients with serious mental illnesses (SMI), such as schizophrenia and bipolar disorder, have appropriate access to nursing home services. Nursing home administrators have cited the potential for disruptive behavior as a major reason why they would be reluctant to admit patients with SMI. This study evaluated the prevalence and correlates of behavior problems among residents of Veterans Affairs (VA) nursing homes and compared residents with SMI to other residents, in particular residents with dementia. The study combined VA national resident assessment data with diagnostic data included in VA administrative data. The analytic sample consisted of 9,618 residents. Each resident's verbally disruptive, physically aggressive, and socially inappropriate behaviors were assessed in the prior four weeks. Functional limitations in eating, mobility, toileting, and transfer were also assessed. Multivariate ordinal logistic regression was used to evaluate associations. 17.9% of residents received diagnoses of SMI. Residents with SMI and/or dementia had greater behavior problems than residents with neither condition. Residents with SMI (and without dementia) exhibited more verbally disruptive behaviors than residents with dementia (and without SMI). However, the two subgroups did not differ in physically aggressive or socially inappropriate behavior. Clinical practice and nursing home staff training must encompass geriatric mental health and behavior management to meet the needs of residents with SMI.

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PROGRAM FOR IMPROVING HEALTH CARE DECISIONS (PIHCD)

EXCERPT FROM OCTOBER 2004 "DECISION OF THE MONTH" (WWW.PIHCD.ORG)

PETER UBEL, MD
DIRECTOR, PIHCD

Scenario: Imagine that the director of a health system wants to create a new liver transplant program in one of its two hospitals. Each liver transplant program would serve the same number of people. Unfortunately, the director of the health system can only fund one new program. Which program should the director fund?

HOSPITAL A	HOSPITAL B
Patients usually need liver transplants due to Early Onset Liver Disease, an inherited terminal disease that causes liver failure.	Patients usually need liver transplants due to Late Onset Liver Disease, an inherited terminal disease that causes liver failure.
Patients are 35 years old, on average.	Patients are 65 years old, on average.
Patients typically live for about 10 years after the transplant before they die of other complications from the disease.	Patients typically live for about 10 years after the transplant before they die of other complications from the disease.
Patients will die within 6 months if they do not receive a liver transplant.	Patients will die within 6 months if they do not receive a liver transplant.

Would age matter if the scenario did not involve a life-threatening condition? PIHCD investigators teamed up with investigator Mira Johri, of The University of Montreal, to conduct a study wherein participants read two scenarios from the perspective of a health system planner. One scenario was similar to the one you read above involving a choice between two programs treating a life-threatening condition. The other scenario did not involve a life-threatening condition, and instead asked participants to choose between two programs treating suffering and pain for chronically ill patients (palliative care). In addition to choosing between programs that benefit different age groups, participants were explicity asked to indicate the importance they placed on age as a factor in allocating funds to different treatment types for each scenario. To provide insight into moral reasoning, open comment space was provided.

The researchers found in the life-saving scenario that the majority favored the program that served the younger age group. In the palliative care scenario, however, the majority of participants indicated that both programs were equally good. Also, when considering various treatment interventions, participants indicated that age as an allocation criterion was most important for life-saving interventions and least important for pain relief interventions.

Why is this finding important? The quality-adjusted life-year (QALY) model for cost-effectiveness analysis, which is widely used in determining health care resource allocation, assumes that a healthy year gained is of equal value to all, irrespective of patient age. Many have argued that the QALY model is then biased in favor of the elderly, especially when numerous studies support a consensus favoring allocation of health resources to younger age groups. However, the proposal to age-weight QALYs in favor of the young has been based on studies that focus on life-saving interventions. Prior to the current study, no study had been done that examined people's attitudes towards the importance of age as an allocation criterion across other intervention types. The current study has shown that although the public does favor the young in the context of life-saving interventions, the same is not true when it comes to interventions like pain relief. According to the present results, the public believes that different age groups should be valued equally for such interventions. Application of age weights to QALYs would then skew program rankings towards interventions serving younger age groups to a greater degree than merited by the public. The researchers argue that it is thus essential to hold off on applying age weights in calculating QALYs until more research has been done.

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